

## CLAIMS

### WHAT IS CLAIMED IS:

- 5           1.       A library of molecular profiles of chemical compositions having predetermined toxicities, produced by a method comprising the steps of:
- a) contacting an isolated mammalian embryoid body with a chemical composition having predetermined toxicities;
- b) recording alterations in gene expression or protein expression in the  
10       mammalian embryoid body in response to the chemical composition to create a molecular profile of the chemical composition; and
- c) compiling a library of molecular profiles by repeating steps a) and b) with at least two chemical compositions having predetermined toxicities.
- 15           2.       The library of claim 1, wherein the isolated mammalian embryoid bodies are of human.
- 20           3.       The library of claim 2, further wherein the chemical compositions having predetermined toxicities are selected from the group consisting of therapeutic agents, neurotoxins, renal toxins, hepatic toxins, toxins of hematopoietic cells, and myotoxins.
- 25           4.       The library of claim 2, further wherein the chemical compositions having predetermined toxicities are selected from the group consisting of agents that are toxic to cells of one or more reproductive organs, teratogenic agents and carcinogens.
5.       The library of claim 2, further wherein the chemical compositions having predetermined toxicities are selected from the group consisting of agricultural chemicals, cosmetics, and environmental contaminants.
- 30           6.       The library of claim 1, wherein the isolated mammalian embryoid bodies are of non-human mammals.

7. The library of claim 6, wherein the non-human mammals are rodents.

5 8. The library of claim 6, further wherein the chemical compositions having predetermined toxicities are selected from the group consisting of animal therapeutics, neurotoxins, renal toxins, hepatic toxins, toxins of hematopoietic cells, and myotoxins.

10 9. The library of claim 6, further wherein the chemical compositions having predetermined toxicities are selected from the group consisting of agents that are toxic to cells of one or more reproductive organs, teratogenic agents and carcinogens.

15 10. The library of claim 6, further wherein the chemical compositions having predetermined toxicities are selected from the group consisting of agricultural chemicals, cosmetics, and environmental contaminants.

11. The library of claim 1, wherein the library comprises molecular profiles for at least 20 chemical compositions.

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